position and readily collapsed to a compact, smaller area for storage or the like. In such configurations, the sections may collapse from one geometric configuration to a smaller geometric shape. In certain of these embodiments, the entire display itself collapses from one geometric shape to a shape of smaller area while individual sections of the display may not be deformed. In certain embodiments, the expanded and collapsed shapes may be of the same geometric class, or may be distinct geometric shapes. Area as used herein refers to the area occupied by the exterior shape of a collapsible display when viewing the display head-on. It should be readily appreciated that the volume of the collapsible display changes, as well as its area.

[0042] Various of the available geometries for a collapsible display will now be particularly described with respect to **FIGS. 5-14** below. In various embodiments, the shape of a collapsible display in its fully-extended configuration may include one or more of the following: a general polygon, a convex polygon, a concave polygon, a star polygon, a wedge, a fan shape, and an arcuate, oval, elliptical, circular, or other regular or irregular rounded shapes. One of skill in the art will readily appreciate that many other geometries may likewise be used.

[0043] Such geometries may be readily adapted for stand-alone use or for use with an integrated electronic device. In various embodiments, an expanded display may extend from a side or corner of the integrated electronic device. A collapsed display may also be partially- or fully-retractable into the casing or body of an integrated electronic device for storage. Various geometries allow the collapsible display to expand to an area greater than that of the integrated electronic device, or in which the display area is greater in at least two dimensions (such as length and width) than the integrated device. Where the display and the electronic device are integrated, the display may be in a fixed orientation on the device, or may be allowed to tilt or yaw via appropriate attachment devices. Hardwired connections for video and power between the display and the integrated device may be provided in any of a variety of manners.

[0044] In the various embodiments described herein, the collapsible display may readily collapse or expand with a single action, such as a single hand motion. This is an advantage relative to known techniques, such as multiple-axis fold-up displays, in which many separate unfolding actions must be taken to expand the display. Alternatively, one or more controls, such as a button, can be provided to expand or collapse the display by activating appropriate actuators, electrical motors, spring-loaded mechanisms and the like. In such cases, the reduced number of actions required to collapse or expand the display is advantageous in that it may reduce the number of actuators, thereby improving reliability and reducing manufacturing cost. Controls may also be provided to lock the display in a fully expended or a fully collapsed position.

[0045] **FIG. 5** shows a first available configuration **500** for a collapsible display, referred to herein as a "folding fan" configuration. Displays in the folding fan configuration **500** may be readily expanded and collapsed in a single motion, similar to known folding paper hand fans.

[0046] The folding fan configuration **500** includes one or more support members **502**, such as rigid ribs or arms. Any number of such support members **502** may be provided, however, it would be beneficial to include as few support members as are needed to properly support the display membrane **400**, thus reducing design complexity and cost.

[0047] In general, the support members **502** substantially overlap at one end where they are attached at a common pivot point **504** by a connector **506**, such as a rivet, a ball-joint, or the like. In certain embodiments, one or more support members may rotate about separate pivot points (not shown). The support members **502** may, in certain embodiments, include a narrow extension **518** for supporting one or more sections **510** of the deformable display membrane **400**. Alternatively, the support members **502** may support the sections **510** of the display membrane **400** substantially along their entire length.

[0048] The support members **502** are each rotatable about the pivot point **504** between a common collapsed position of compact area to a separate second radial position, where the display membrane **400** is fully expanded to its maximum area to form the folding fan configuration **500**. When each of the support members **502** are in the collapsed position, individual sections **510** of the display membrane **400** are collapsed along one or more axes **512**. When expanded to their separate second radial positions, sections **510** have substantially opposite ends that form an oblique angle relative to each other; the sections **510** point in separate radial directions and are not parallel to each other or to the common axis **512**.

[0049] The fact that the display sections **510** have these substantially opposite ends that form an oblique angle relative to each other is what allows the folding fan collapsible display to achieve a compact collapsed configuration. It allows each of the individual display sections **510** to have substantially the same shape while folding easily along their respective common axes **512** as the supports **502** are rotated around pivot point **504**. Note that there are many simple variations on the shape depicted in **FIG. 5** for the display sections **510** that operate in essentially the same way. For example, if each display section **510** were to be extended further down the support member **502**, making its lower end closer to the pivot point **504**, the extended display section **510** would then have a substantially triangular shape. While in this case it could be argued that such a shape has no "opposite" ends in the most literal sense (since it would appear to have three sides), it is obvious that this extended shape operates in the same way as the shape depicted in **FIG. 5**. The reason for this is that the two ends that are adjacent to the pivot point **504** form the same oblique angle as in **FIG. 5**, even though the end closest to the pivot point **504** has been moved closer to pivot point **504** and made much shorter.

[0050] **FIG. 5** illustrates the following additional point. In **FIG. 5**, every other display sections **510** is supported by a rib section **518** of a support member **502**. The other display sections **510** are not supported by a rib **518**. It can be seen that as the support members **502** are spread to expand the display, the unsupported display sections **510** are simultaneously rotated 180 degrees around both common axes **512**—in short, each unsupported display section **510** is flipped over as the folding fan display is opened. Hence, the unsupported display sections **510** rotate entirely out of the plane of the display and then back into the plane of the display. In addition to this rotation with respect to the plane